15. (New) The method of claim 1, wherein no insulating layer is provided between either of the electrode layers and the light emission layer.

16. (New) The device of claim 10, wherein no insulating layer is provided between either of the electrode layers and the light emission layer.

17. (New) The method of claim 12, wherein no insulating layer is provided between either of the electrode layers and the light emission layer.

18. (New) The method of claim 14, wherein no insulating layer is provided between either of the electrode layers and the light emission layer.

REMARKS

This is in response to the Office Action dated August 6, 2002. New claims 15-18 have been added. Claims 1-10 and 12-18 are pending. Attached hereto is a marked-up version of the changes made to the claim(s) by the current amendment. The attached page(s) is captioned "**Version With Markings To Show Changes Made.**"

Claim 1 stands rejected under 35 U.S.C. Section 103(a) as being allegedly unpatentable over Rebeschi in view of Yamada. In particular, the Office Action contends that it would have been obvious to have used the *organic* light emission material of Yamada in the *inorganic* device of Rebeschi. This Section 103(a) rejection is respectfully traversed for at least the following reasons.

Claim 1 requires a method of driving an ***organic*** EL emission device (EL emission device having an ***organic*** light emission layer for EL emission) in a manner such that the prescribed electric fields are substantially always different from each other in at least either strength or polarity in adjacent electrode pair regions. As shown in Fig. 1 of the instant application for example, voltage from source 7 is applied to the different electrode pair regions so that the voltage across a first electrode pair region may be opposite in polarity to the voltage across an adjacent electrode pair region (page 7, lines 9-15). For example, Figure 3 illustrates that electrodes s1 and s2 (which define adjacent electrode pair regions with corresponding electrodes c1, c2) are always subject to a drive voltage with opposite polarity. As explained on page 10 of the instant application, deterioration of the light emission panel due to charge accumulation can be reduced or prevented by the claimed feature of applying electric fields which differ in strength and/or polarity to adjacent electrode pair regions in an ***organic*** EL emission device.

EL emission devices are classified into two separate and distinct categories; namely *organic* and *inorganic*.

<u>Inorganic</u> -- As explained on page 1 of the instant application, inorganic EL emission devices utilize fluorescence emitted by relaxation of energy at luminescence centers. The luminescence center is excited by collision with accelerated electrons that reside inside the light emission layer with a high electric field between the two electrode layers. Thus, inorganic EL emission devices require application of high voltage (e.g., see pg. 1, lines 16-24, of the instant specification).

Organic -- In contrast, organic EL emission devices utilize fluorescence emitted when organic molecules return to their ground state of energy from their excited state caused by recombination of holes and electrons at luminescence centers (e.g., see pg. 1, lines 25-27, of the instant specification). The holes and electrons are injected into the light emission layer from a positive electrode layer and a negative electrode layer, respectively. Thus, in general, organic EL emission devices are characterized by DC being injected into the light emission layer to produce EL emission at relative low voltage. *The instant invention is concerned with organic EL emission devices; not inorganic.*

The alleged Section 103(a) combination of Rebeschi and Yamada would *destroy* the functionality and operation of the base reference Rebeschi for the following reasons, thereby rendering the Section 103(a) combination clearly incorrect as a matter of law.

Rebeschi discloses an *inorganic* EL emission device which uses ZnS doped with Mn for an EL material (col. 3, lines 54-55). Rebeschi relates only to inorganic emission devices. As shown in Fig. 2 of Rebeschi, insulating layer 213 is provided between electrode layer 212 and EL material 214, and another insulating layer 215 is provided between *inorganic* EL material 214 and electrode layer 216. When DC voltage higher than a threshold voltage (e.g., 180 V) is applied between electrodes 212 and 216, electrons tunnel through layers 213-215 and excite Mn in EL material 214 and the Mn emits photons (e.g., col. 3, lines 56-64). Rebeschi's variation of voltages is only in the context of *inorganic* devices.

The Office Action contends that it would have been obvious to have replaced the inorganic EL material 214 of Rebeschi with the organic EL material of Yamada. However, if this alleged modification were carried out, the functionality and operation of Rebeschi would be *destroyed.* In particular, if an organic EL material was used for light emission in Rebeschi's EL emission device, the organic EL material would be readily destroyed by the required DC voltage higher than 180 V threshold. If a lower voltage was used in an attempt to prevent destruction of the organic EL material (e.g., 15 V), then DC current could not flow through insulating layers 213 and 215, and the light emission layer could not emit photons. It can be clearly seen that the alleged Section 103(a) combination set forth in the Office Action would destroy the base reference device. One of ordinary skill in the art would never have considered that Rebeschi's disclosure was applicable to organic EL material which has a significantly different light emission mechanism, since Rebeschi's structure prevents the functional use of organic EL material.

The Office Action contends that Yamada discloses substituting organic and inorganic EL materials for one another in a display device. However, this is only in the context of Yamada's driving technique which is much different that that of Rebeschi. Such a substitution, while possibly applicable in Yamada, would destroy Rebeschi as explained above. Again, the Section 103(a) combination is fundamentally flawed.

Claim 1 has also been amended to state that *the EL layer is in direct contact with at least one of the electrode layers* (see also claims 10 and 12). Rebeschi teaches directly away from this by requiring insulating layer 213 between electrode layer 212 and EL material 214, and another insulating layer 215 between EL material 214 and electrode

layer 216. Thus, even the alleged Section 103(a) combination fails to meet the invention of claim 1.

New claims 15-18 require that no insulating layer is provided between either of the electrode layers and the light emission layer. Rebeschi teaches directly away from this by requiring insulating layer 213 between electrode layer 212 and EL material 214, and another insulating layer 215 between EL material 214 and electrode layer 216. Thus, even the alleged Section 103(a) combination fails to meet these claims.

Independent claims 10, 12 and 14 all require an ***organic*** EL emission device (i.e., an EL emission device having an ***organic*** light emission layer for EL emission). The Section 103(a) rejection of these claims is fundamentally flawed, because the alleged modification to Rebeschi would destroy its functionality. One of ordinary skill in the art would never have modified a reference (Rebeschi) in a manner which would destroy it as alleged in the Office Action.

For at least the foregoing reasons, it is respectfully requested that all rejections be withdrawn. All claims are in condition for allowance. If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

1. (*Amended*) In an organic EL emission device comprising:

first and second electrode layers, at least one of which is transparent,

an organic light emission layer for EL emission sandwiched between said first and second electrode layers for together supplying prescribed electric fields to said organic light emission layer, <u>said organic light emission layer being in direct contact with at least one of said electrode layers,</u> wherein

at least said first electrode layer includes a plurality of electrodes arranged with spatial periodicity, and

said plurality of electrodes included in said first electrode layer together with adjacent regions in said second electrode layer including at least one electrode form a plurality of electrode pair regions arranged with spatial periodicity,

a method comprising driving said organic EL emission device in a manner such that said prescribed electric fields are substantially always different from each other in at least either strength or polarity as applied with variation in a time-dependent manner to electrode pair regions adjacent to each other among said plurality of electrode pair regions.

10. (*Amended*) An organic EL emission device, comprising:

first and second electrode layers, at least one of which is transparent;

an organic light emission layer for EL emission sandwiched between said first and second electrode layers, said first and second electrode layers for supplying prescribed electric fields to said organic light emission layer<u>, and wherein said organic light emission layer is in direct contact with said second electrode layer</u>; and

voltage application means for applying a voltage between an electrode included in said first electrode layer and an electrode included in said second electrode layer, wherein

at least said first electrode layer includes a plurality of electrodes arranged with spatial periodicity,

said plurality of electrodes included in said first electrode layer together with adjacent regions in said second electrode layer including at least one electrode form a plurality of electrode pair regions arranged with spatial periodicity, and

said voltage application means applies said prescribed electric fields in a manner such that said prescribed electric fields are substantially always different from one another in at least either strength or polarity in adjacent electrode pair regions and vary in a time-dependent manner.

12. (*Amended*) In an organic EL emission device comprising:

first and second electrode layers, at least one of which is transparent, and

an organic light emission layer for EL emission sandwiched between said first and second electrode layers for supplying prescribed electric fields to said organic light emission layer<u>, said organic light emission layer being in contact with the second electrode layer</u>, wherein

at least said first electrode layer includes a plurality of electrodes arranged with spatial periodicity, and

said plurality of electrodes included in said first electrode layer together with adjacent regions in said second electrode layer including at least one electrode form a plurality of electrode pair regions arranged with spatial periodicity,

a method comprising driving said organic EL emission device so that said prescribed electric fields different from each other in at least either strength or polarity are applied with variation in a time-dependent manner to electrode pair regions adjacent to each other among said plurality of electrodes pair regions, so as to allow a half or less than a half of the total number of electrode pair regions to emit light at a time.

14. (*Unamended*) In an organic EL emission device comprising first and second electrode layers, at least one of which is transparent, an organic light emission layer for EL emission sandwiched between said first and second electrode layers for together supplying prescribed electric fields to said organic light emission layer, wherein at least said first electrode layer includes a plurality of electrodes arranged with spatial periodicity, and said plurality of electrodes included in said first electrode layer together with adjacent regions in said second electrode layer including at least one electrode form a plurality of electrode pair regions arranged with spatial periodicity, a method comprising:

driving said organic EL emission device in a manner such that said prescribed electric fields at a given point in time are substantially always different from each other in polarity as applied to electrode pair regions adjacent to each other.